

**Patent Claims**

1. A light scanning device for exciting and detecting secondary light, especially fluorescent light, on a sample (22), comprising

a light emission device (10) for emitting exciting light (11) with a wavelength suitable for exciting secondary light on or in said sample (22),  
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a focussing optics (34, 44) for focussing the exciting light on a subarea of said sample (22),

a sample holding device (20, 21) for releasably holding the sample (22),

a detection unit comprising a detection optics (32, 42) for the secondary light emitted by the sample in response to excitation and a detector device (31, 41) for converting the detected and imaged secondary light into electric signals,

**characterized in that** the sample holding device is adapted to be rotated for rotating the sample relative to the exciting light in such a way that different subareas of said sample can be excited by means of the exciting light so as to emit secondary light.

2. A light scanning device for exciting and detecting secondary light, especially fluorescent light, on a sample (22), comprising

a light emission device (10) for emitting exciting light (11) with a wavelength suitable for exciting secondary light on or in said sample (22),

a focussing optics (34, 44) for focussing the exciting light on a subarea of said sample (22),

a sample holding device (20, 21) for releasably holding the sample (22),

a detection unit comprising a detection optics (32, 42) for the secondary light emitted by the sample in response to excitation and a detector device (31, 41) for converting the detected and imaged secondary light into electric signals,

*359/210* characterized in that the focussing optics (34, 44) is rotatably supported so as to conduct the exciting light along a circular arc on the sample.

3. A light scanning device according to claim 1, characterized in that the focussing optics is adapted to be radially displaced relative to an axis of rotation of the sample holding device.

4. A light scanning device according to claim 2, characterized in that the sample holder is adapted to be displaced in the radial direction relative to an axis of rotation of the focussing optics.

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a* 5. A light scanning device according to one of the claims 1 to 4, characterized in that the detection unit and the focussing optics (34, 44) are coupled together and have, at least partially, a common optical path.

6. A light scanning device according to claim 4, characterized in that the focussing optics (34, 44) and the detection unit have a common beam splitter (33, 43) so as to unite or separate the optical paths of the excitation light and of the secondary light.

7. A light scanning device according to claim 6, characterized

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ized in that the beam splitter (33, 43) is a dichroic beam splitter which reflects either the exciting light or the secondary light and which essentially transmits the respective other light.

8. A light scanning device according to claim 6, characterized in that the beam splitter reflects the light incident thereon in a ratio of 50:50.

9. A light scanning device according to one of the claims 5 to 8, characterized in that there are provided at least two respectively associated pairs of said focussing optics and said detection units.

10. A light scanning device according to claim 9, characterized in that said focussing optics and detection unit pairs are mechanically coupled.

11. A light scanning device according to one of the preceding claims, characterized in that a pinhole diaphragm is arranged in front of the detector device in an imaging plane of the detection optics for the secondary light.

12. A light scanning device according to one of the preceding claims, characterized in that a blocking filter for suppressing the exciting light is arranged in front of the detector device.

13. A light scanning device according to one of the preceding claims, characterized in that the detector device (31, 41) and/or the light emission device (10) are arranged in a fixed manner.

14. A light scanning device according to claim 13, characterized in that the detector device and/or the light emission device are coupled to the detection optics and the focussing optics, respectively, for transmitting light via

optical fibres.

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15. A light scanning device according to one of the preceding claims, **characterized in that** a colour filter is provided in front of the detector device so as to transmit a specific wavelength of the secondary light.

16. A light scanning device according to one of the preceding claims, **characterized in that** the light emission device comprises a plurality of laser diodes each having a different output wavelength.